

List of Perchlorate Materials

As part of developing best management practices for perchlorate materials, which are required by AB 826 the Perchlorate Contamination Prevention Act, DTSC has compiled the following list of materials that contain perchlorate and activities or industries which utilize perchlorate. If you have any additions or other comments regarding this list please contact Mr. Ed Nieto at (916) 322-7893.

- a. Adhesive – Steel plate bonding: May contain perchlorate
- b. Batteries – Li-Ion, *see note at end
- c. Cathodic protection systems: May contain perchlorate
- d. Chemistry – Analysis, Desiccants, Feedstock, Oxidizing agent
- e. Chemistry – Brine separation: May contain perchlorate
- f. Chlorate/chlorite manufacturing – May contain perchlorate
- g. Clandestine methamphetamine labs – May be contaminated by perchlorate from dissolving flare striker caps to obtain red phosphorus.
- h. Cloud seeding
- i. Coatings – Paint, Enamel: May contain perchlorate
- j. Dielectric for transformers – May contain perchlorate
- k. Electroplating - May contain perchlorate
- l. Electropolishing
- m. Explosives – Military
- n. Explosives – Geoseismic, Nitrate-based: May contain perchlorate
- o. Evaporites – May contain perchlorate
- p. Fertilizer – Some contain perchlorate (Bulldog Soda from Chile)
- q. Flares/fusees
- r. Gas generator – Airbag, Ejection seat
- s. Gas generator – Aircraft oxygen

- t. Laboratory – Rocket motor, ordnance testing
- u. Laundry bleach – May contain perchlorate
- v. Nitrate acid manufacturing – May contain perchlorate
- w. Pharmaceutical – Diagnosis, Treatment
- x. Photography – Flash powder and possibly other uses. Potassium
- y. Pool sanitizer
- z. Pool shock – May contain perchlorate
- aa. Propellant – Chemical cutter
- bb. Propellant – Ordnance(gunpowder), Tracer bullets(red phosphorus): May contain perchlorate
- cc. Propellant – Solid rocket motor – Ammonium perchlorate
- dd. Pyrotechnics (fireworks)
- ee. Regenerable drying agent for gases – Magnesium
- ff. Safety matches – May contain perchlorate
- gg. Well drilling – Permeability aid: May contain perchlorate

* Lithium battery types include lithium-manganese dioxide, lithium-sulfur dioxide, and lithium-thionyl chloride. The anode is composed of lithium and the cathode is composed of manganese dioxide (or sulfur dioxide, or thionyl chloride). The electrolyte of the lithium-manganese dioxide battery is composed of an organic solvent (propylene carbonate and 1,2 dimethoxyethane) solution of lithium perchlorate. In the case of lithium-sulfur dioxide, the electrolyte is also an organic solvent (acetonitrile) solution with lithium bromide. Lithium-thionyl chloride batteries have a non-aqueous thionyl chloride solution containing lithium aluminum chloride. Lithium-sulfur dioxide batteries contain pressurized sulfur dioxide gas and lithium-thionyl chloride batteries contain liquid thionyl chloride which vaporizes upon exposure to air, both of which are highly toxic.

Previously reported to contain perchlorate but recent research shows does not contain perchlorate:

- a. Aluminum refining – Aluminum electro-polishing only
- b. Animal fattening agent – Ice cream butterfat analysis. Feedlot contamination

- c. Electronic tubes – Electron tube with contaminant found on it at military base
- d. Leather tanning – HClO_4 used to digest leather samples for chromium content
- e. Lubricating oil additive – Anti-oxidants added. Fluorocarbon lubricating oils compatible with perchlorate pumping.
- f. Nuclear reactor – Nuclear warheads on rockets. Uranium analytical chemistry.
- g. Synthetic rubber – Rubber as binder in rocket motors